

# MANUFACTURING EXTENSION PARTNERSHIP

## Success Stories from the Field

### Quabaug Corp

#### Massachusetts Manufacturing Extension Partnership

#### Quabaug Corporation puts their Hearts and Soles into Lean

##### Client Profile:

Quabaug Corporation has been designing and manufacturing a variety of rubber products and soling for footwear in their plant in North Brookfield, Massachusetts, since 1916. For over 40 years, they have been under exclusive license as the manufacturer of Vibram® soles and soling products in North America. Quabaug provides soles for high-end work, military and outdoor boots and employs 250 people.

##### Situation:

Quabaug is driven by the desire for continued success in a very competitive environment where they are one of the only remaining manufacturers of their kind. China is now their main competition. In order to reach their goals of remaining viable, competitive and above all, staying in the U.S., Quabaug knew they had to continue to get better at what they do. With the rising costs of health insurance, raw materials and utilities, they knew they needed to continue to learn and grow and evolve and so did their methods. The company invited Massachusetts Manufacturing Extension Partnership (Mass MEP), a NIST MEP network affiliate, to do a Lean assessment of the facility and its processes.

##### Solution:

Mass MEP's Rich Emmons provided a report of his findings and suggestions to Quabaug's management team and also helped the company apply for a Work Force Training Fund grant to offset costs of proposed training. At the same time, Quabaug's General Manager, Craig Barton, and President/COO, Mike Gionfriddo, were exposed to Lean concepts by participating in a six-week Lean Certificate program hosted by Solutia, a company in Indian Orchard, Massachusetts. The series was co-sponsored by AIM (Associated Industries of Massachusetts) and the Mass MEP. During these sessions, participants were introduced to the Lean tools of Value Stream Mapping and Kaizen (take apart and put back together in a better way) and participated in several basic Lean training events. Quabaug put some of their Lean education to use in the Polyurethane Department and began by mapping the current state Value Stream and doing a spaghetti diagram of the existing process from the time they began production, to when product was shipped out the door. They determined what the future state would be, what they wanted to see changed, and the desired outcome. The mapping and diagramming showed that there was a lot of product staged and waiting throughout the process, approximately five and one-half days of WIP (Work in Process). There was also excessive material travel. The team decided to create a cell in the area so that the work could be handed off from step to step in a one piece flow. Showing what a huge impact such a small change could make in this department was integral to the eventual buy in to Lean training by even the staunchest critics. Several Time Wise Lean 101 events were scheduled off site, and nearly everyone, from the CEO to team leaders to hourly associates participated. Afterwards, these associates could bring their knowledge back to their departments. The training sessions taught basic Lean concepts in a day long program of classroom work and hands-on factory simulation. The participants felt that the training presented the

## MANUFACTURING EXTENSION PARTNERSHIP

### Success Stories from the Field

material very successfully and were eager to move ahead with Lean.

Simultaneously to working on Lean with MEP, Quabaug was working with a consultant who assisted them with pull scheduling. It was natural to work on the two things at once so that the processes could evolve together since they are related. The goal was to reduce inventory and costs by producing only what they needed to produce. This idea of producing to the pull of the customer clashed with the old philosophy that if machines were not running they were wasting money. As time has passed, work has continued throughout the facility and on all shifts. There were many 6S events and Set-up Reduction Kaizens. 6S is 5S with another "s" Quabaug added for safety. In this process, the work space is cleaned and organized by, sorting, shining setting things in order, standardizing and sustaining. Kaizen events followed the Value Streams which were mapped in many departments at Quabaug. The areas of waste were identified and the necessary improvements were made during these events.

Lean has helped Quabaug offset the significant increases they have seen in raw materials and energy costs due to climbing petrochemical prices. Adopting Lean processes has been an integral part of being able to minimize passing on cost increases to the customer. Recycling scrap materials from the manufacturing process has also proven to be a lucrative way to eliminate waste and increase revenue. Small rubber pieces, or "chips," have become a popular ground covering for school playgrounds and child care facilities. Quabaug has also expanded to produce some new products like pet performance products, therapy tools and rubber mats.

Lean concepts, such as standardization, cross training and formal work instructions have had a positive impact on the workforce. It has made it much easier to get new associates up to speed and to provide consistency which is not affected by someone's absence. This formal work instruction format is so effective that Mass MEP has used it as a model with other client companies. Quabaug credits Lean with their ability to successfully integrate into their operation the additional equipment and volume resulting from the buy-out of their main competitor. Now, they are one of the last manufacturers of their kind still operating in the U.S. They can compete with China because they produce smaller quantities, deliver top quality product when the client wants it, and can react quickly and efficiently when changes occur.

#### **Results:**

- \* Reduced production of cell from 5 1/2 days to having the product shipped while it is still arm from the molding process.
- \* Reduced lesser quality of product from 3.5-4 percent range to 0.2-0.5 percent range.
- \* Eliminated WIP inventory.
- \* Achieved a more competitive and profitable position.
- \* Freed up 2,000 square feet of space.

#### **Testimonial:**

"The key advantage that Quabaug has realized from the relationship with Massachusetts Manufacturing Extension Partnership was that we were supported and assisted with identifying building blocks to improve our efficiencies and position us to be successful in a very competitive and challenging marketplace. Mass MEP assisted us with developing tools to continue to meet new challenges."

Craig Barton, General Manager